MOSQUITO CONTROL SPRAY POLICY

The Delaware Mosquito Control Section (Division of Fish and Wildlife, Department of Natural Resources and Environmental Control) utilizes an Integrated Pest Management (IPM) program to control mosquitoes in Delaware.

I. CONTROL METHOD PRACTICES AND PRIORITIES

The Department's (DNREC's) first preference for control is to use environmentally-sound source reduction techniques such as Open Marsh Water Management (OMWM) for saltmarsh mosquito control, managing or manipulating water levels in high-level coastal impoundments so as to disrupt the mosquito's life cycle, or stocking of larvivorous fishes in stormwater basins, backyard ornamental ponds, beaver ponds, etc. Such biological controls are effective in controlling an estimated 95 percent of mosquitoes breeding in areas treated with source reduction. The Department has a long-term program for implementing such approaches and is carrying out this program as time and resources permit. However, source reduction techniques are not suitable for some mosquito producing habitats, and in some cases landowners will not permit the Department to undertake the activities needed for source reduction purposes. In such circumstances, other control measures must then be employed.

The second preference for control is selective application of environmentally-compatible, EPA-registered larvicides (products designed to kill mosquitoes while they are still in the concentrated aquatic life stage) applied to the areas where mosquitoes breed. Aerial larviciding by fixed-wing aircraft or helicopters is usually not practiced directly over residential or developed areas, but ground-applied larvicides are frequently used to treat roadside ditches, flooded fields, used tire piles, abandoned swimming pools, woodland pools, median strip swales, lawn puddles, etc. in urban areas or suburban communities. Aerial larviciding by fixed-winged aircraft or helicopter is primarily used to treat freshwater wetlands, flooded woodlands, or coastal salt marshes or tidal wetlands, and is done only as warranted based upon intensive field surveys of larval occurrence, distribution and abundance. To be effective, larvicides must be applied during a very restricted period in the mosquito's aquatic phase of development. However, unfavorable weather or tidal conditions may prevent effective larvicide applications during this period. Larvicides routinely used in the recent past have included organophosphates such as temephos (Abate); but there is now a tendency to move toward third-generation larvicides, including juvenile growth hormone mimics such as methoprene (Altosid) or bacterial insecticides such as Bti (VectoBac, Aquabac, Teknar). These products may be either liquid or granular formulations. All larvicide products are applied according to federal, EPA-approved label specifications, as required by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

When unfavorable larviciding conditions occur or larviciding has been unsuccessful, it might be necessary to resort to adulticiding (the term used to describe spraying practices to control adult mosquitoes). This type of spraying always occurs via a liquid formulation which ultimately becomes a fog or vapor. This is not to be confused with larviciding, which is often done via a dry/granular formulation. The adulticides used for the control of pestiferous mosquito species (e.g. organophosphates such as naled, or synthetic pyrethroids such as resmethrin or sumithrin) are EPA-registered insecticides, which (like the larvicides) have demonstrated minimal human health or environmental risks, and as such can be sprayed over or within populated areas. The EPA has determined that all the mosquito control insecticides applied by the Mosquito Control Section can be used to kill mosquitoes without posing unreasonable risks to human health, wildlife or the environment (but this is not to say that there are no risks at all). Once again, all adulticide products are applied according to federally, EPA-approved label

specifications, as required by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The Department will keep abreast of any EPA announcements that would suggest that a pesticide of choice (larvicide or adulticide) might present greater risks to human health or the environment than previously thought, and certainly comply with any new EPA requirements affecting the use of individual pesticide products.

When adulticides have to be used, our first choice is to apply them aerially within or immediately adjacent to mosquito-breeding areas, immediately after the adult mosquitoes have emerged. This tactic is more effective and less expensive than spraying adulticides over widespread areas after the adults have dispersed. However, before newly-emerged adults migrate to upland zones, the time period available to achieve satisfactory control on or near their breeding habitats is even shorter than for larviciding.

In some cases, however, all of the above controls are inadequate to control mosquito populations prior to their movements into developed areas. In such cases, adulticiding in populated areas might have to be done, particularly if nuisance problems become intolerable or there is the chance of spreading mosquito-borne diseases. These adulticides might be applied aerially (primarily by fixed-wing aircraft) or by ground using truck-mounted sprayers.

This spray policy primarily addresses the issues of insecticide applications in populated areas, with an emphasis on adulticide use whether by aerial or ground applications. The best available scientific information from the EPA and product manufacturers, plus independent research by the University of Delaware and other sources, leads us to conclude that the products we use, and the manner in which we use them, pose no unreasonable risks to the public (human health), wildlife or the environment. The EPA's product-labeling process reflects the permitted use and safety precautions that pesticide applicators must adhere to. The EPA, in order to designate a product's approved use, has to complete a risk assessment, and has to determine that the final end use possesses extremely low human health or environmental risks when applied in accordance with federally-approved label instructions, as required by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

II. ADULTICIDING IN POPULATED AREAS

The decision to spray for mosquitoes in populated areas depends upon two forms of evidence indicating that mosquito populations are unacceptably high. The first form is physical evidence obtained in populated areas from professional analyses of adult mosquito light-trap data (where available) for population abundance and species composition, or upon adult mosquito landing rate counts. Light-trap counts in populated areas exceeding 25 adult females per night of pestiferous species, or landing rate counts averaging three (3) or more adults per minute in populated areas, indicate a nuisance condition substantially lowering the quality-of-life, as well as an enhanced possibility for mosquito-borne disease transmission. Except when there are additional reasons to believe that some mosquito species may be presenting a significant public health risk, no spraying will be conducted unless physical or complaint evidence suggests that spraying is warranted.

The second form of evidence is public complaints in populated areas, resulting in requests for spraying coming from either individuals, civic or homeowners associations, or local city or town officials within incorporated municipalities. To the extent practicable the Section will investigate in the field the need for a spray response based on the physical evidence previously described, collected in manner as can be practicably obtained in the field in consideration of mosquito species-specific diurnal/nocturnal activity patterns, sampling limitations, and staff or equipment logistical constraints. The Mosquito Control Section will decide whether spraying is

warranted on the basis of physical evidence alone; or by the merit, as determined by the Section, of a municipal request; or by the number and merit, as determined by the Section, of citizen complaints directly received by the Section. **[In regard to public requests for adulticide spraying coming from incorporated areas, the Section requires that citizen requests for spraying during an infestation be coordinated and conveyed to the Section by phone through a designated municipal official.]**

III. PROTOCOLS FOR ADULTICIDING INCORPORATED MUNICIPALITIES

1. Mosquito Control Municipality Spray Endorsement

On an annual basis, each incorporated municipality (city or town) desiring aerial adulticiding or aerial larviciding will prepare and sign a waiver on official municipal letterhead permitting spray application of insecticides by low-flying aircraft for treatments to be done by the Delaware Mosquito Control Section or its contractors, in order to comply with Federal Aviation Administration (FAA) regulations.

Before the start of the pest season (by mid-March), the municipality will also acknowledge and agree to through a signed endorsement the Mosquito Control Spray Policy's provisions, in order to allow and request the Mosquito Control Section to spray as warranted either all or portions of areas within the municipality's jurisdiction in accordance with this spray policy. Return of the signed endorsement requesting spraying will be needed for the Section to spray by fixed-wing aircraft, helicopter, or truck-mounted sprayer or fogger any adulticides or larvicides within a municipality's borders, with exception of aerial spraying of larvicides over coastal tidal wetlands, and with exception of ground application of larvicides to tidal or non-tidal wetlands or other aquatic breeding sites by truck-mounted sprayers or hand application methods. [In regard to these last two situations, approval from municipalities is *not* necessary for the Section to aerially treat coastal tidal wetlands with larvicides, nor to make ground applications of larvicides in tidal or non-tidal wetlands or other aquatic breeding sites.] Without receipt of this signed endorsement, the Section will assume that the municipality does not want any aerial adulticiding or non-tidal wetland aerial larviciding, nor any truck-mounted spraying of adulticides, within their jurisdiction during the current pest season (mid-March through mid-November). If a municipality does not sign and return the endorsement before start of the pest season, it must be kept in mind that any change of thought resulting in a municipality to then request spraying later in the season cannot be honored until the endorsement is signed and returned to the Section, which in many cases might slow down or even prohibit the Section's ability to provide timely treatment, even in response to severe nuisance problems or potential disease outbreaks.

2. Adulticide No-Spray Requests and No-Spray Zones

The Mosquito Control Section will not spray those municipality areas delineated by the municipality, and agreed to by the Section, to be zones where: 1) no aerial adulticide can be applied; or 2) areas where no ground adulticide can be applied; or 3) areas where neither method of adulticiding can be done. *Residents/property owners within an incorporated municipality desiring not to be included in the aerial or ground adulticide program must make such requests known by contacting their local municipal government officials.* The decision to request or authorize a No-spray zone within a municipality, and the consequences for doing such, are entirely the responsibility of a municipality's officials. It is anticipated that such No-spray zones will not be sought by municipalities for non-residents or non-property owners (i.e. not applicable to casual visitors or tourists). The municipality, after accounting for factors given in Section 3 below (sizes of No-spray zones), will prepare maps of No-spray zones that were requested by their citizens and approved by the municipality, and submit these maps to the Mosquito Control Section for review and concurrence. Please note that it is important that the locations and sizes

of each No-spray zone within a municipality be identified each and every year, as there will be no automatic carryover of No-spray zone designations from previous years. The Section will review the submitted maps and inform the municipality in writing (by U.S. Mail or e-mail) of its concurrence. If concurrence cannot be given by the Section for the proposed No-Spray zones because of technical or logistical problems, the Section will then meet with municipal officials to resolve these problems. If a municipality wishes to modify the No-spray zone designations after the pest season has started (i.e. after mid-March), the municipality may request such modification from the Section, but should understand that the Section will need at least two weeks advance notice in order to comply with the requested modification.

With exception of a declared public health emergency by appropriate State-level agencies, it must be understood that within a municipality the decision to adulticide for mosquito control purposes or not to spray is totally up to municipal officials, who have to weigh several factors in making this decision, to then possibly be followed by requesting the Mosquito Control Section's treatment services. These officials have to consider the impacts of intolerably high mosquito populations on quality-of-life factors and local economies, along with the possibility of mosquito-borne disease transmission, weighed against very negligible risks to human health or the environment when using EPA-registered adulticides in manner prescribed by the EPA, plus perhaps aircraft noise issues occasionally associated with aerial applications. If a resident or visitor to an incorporated city or town has a problem with this municipal decision, their complaint or grievance should be taken up with the municipality, not with the Mosquito Control Section. If a resident or visitor's complaint or problem involves aircraft noise or other operational issues for how spraying was done, exclusive of concerns or issues dealing with pesticide exposure, the municipality should, in consultation with the Mosquito Control Section, attempt to directly address these issues with the resident or visitor making such complaint. If the complaint or problem concerns pesticide exposure, which in many cases is quite unavoidable in responding to a municipality's request for adulticiding over or within populated areas, the Mosquito Control Section will assist a municipality in technically addressing a complaint or issue raised by a resident or visitor. However, it must be kept in mind that the Section applied the adulticide at the municipality's request, in conjunction with the Section also independently investigating to the extent practicable that the adulticiding was warranted.

3. Sizes of No-Spray zones

Because of technical constraints, a No-spray zone for aerial adulticiding must be a minimum of 6 acres in size(approximately 500 ft. x 500 ft.), and a No-spray zone for ground spraying must be a minimum of 2 acres in size (approximately 300 ft. x 300 ft.). Operationally, in almost all cases it will probably **not** be necessary for the No-spray zone be much larger than these minimums (in order to avoid treating the residence where no spraying has been requested), but the final determination of the size of the No-spray zone will be made by the Section on a case-by-case basis.

It must also be recognized by the local municipalities that certain configurations or densities of No-spray zones might also prohibit adulticide spraying to an extent greater than the mere summation of individual No-spray zones. It must also be kept in mind that in many locations the creation of a No-spray zone for an individual residence will preclude adulticide treatment for many neighbors or nearby residences who desire pest relief -- this situation is a dilemma that the local municipality must resolve.

4. Advance Notification of Spray

When there is a good probability that adulticiding operations are imminent within a municipality, to the extent practicable for sake of public notification the Mosquito Control Section will, for each adulticiding event (whether done by air or truck), do the following:

1) contact in advance by telephone an appropriate government official and provide by telefax a spraying announcement to each affected municipality;

2) place a phone spraying announcement on a Mosquito Control Section recorder that citizens can call toll-free at 1-800-338-8181 to find out about the status of spraying;

3) on a statewide basis, contact over 12 local radio stations by telefax and provide a spraying announcement, which the radio stations may or may not choose to broadcast;

4) post a similar spraying announcement on the Mosquito Control Section's (Division of Fish and Wildlife's) DNREC webpage, which the public can access via the Internet at http://www.dnrec.state.de.us/fw/mosquito.htm;

5) for anybody who wants to personally receive via e-mail up-to-date spraying announcements, they can subscribe to a Mosquito Control listserver that will automatically disseminate such announcements to them via the Internet (simultaneously done in conjunction with posting these spraying announcements on Mosquito Control's DNREC webpage)-- the sign-up for this listserver can be accomplished by accessing the Mosquito Control webpage address given above in item #4;

6) finally, immediately prior to aerial applications of adulticides, the treatment aircraft will briefly circle over pertinent areas within a municipality, to provide final notification or signal in the field of intention to spray.

Any additional notification of intent to spray is up to the participating municipalities to perform or offer, but it is probable that giving additional public notice going beyond what the Mosquito Control Section presently performs would not be very feasible or practicable to do.

To the extent feasible and practicable, with exceptions for health emergencies or when contending with unsettled weather conditions for spraying, such advance notification will be issued by the Mosquito Control Section at least four (4) hours before any adulticide spraying begins, and be done for every adulticiding effort within a municipality's jurisdiction.

The advance notification procedure for spraying described above will also now be followed for every *aerial* larviciding effort within a municipality's jurisdiction (in the past, such notice was routinely provided for spring woodland control aerial larviciding and other aerial treatments of freshwater wetlands, but was not done for aerial larviciding of coastal marshes). While aerial larviciding operations in treating wetland breeding sites usually do not involve spraying directly over people, the unfortunate terrorism events of September 11, 2001 have now greatly increased the public's concern and anxiety about possible bioterrorism events, which could occur (at least in theory) via pesticide spray delivery systems, so it is now prudent to ensure that municipal officials are fully aware in advance of any-and-all adulticiding (whether done by air or truck) or aerial larviciding within their jurisdictions. What will not be publicly announced will be truck-based spraying of larvicides (e.g. along roadside ditches) or hand-applied larviciding done on foot (e.g. when treating localized breeding sites in small pocket marshes or in residential areas), since these types of activities are: 1) sometimes numerous and scattered; 2) are often not determined to be necessary until actually on-site; and 3) because of

their carefully targeted applications to localized surface water (as opposed to the widespread spraying of adulticide aerosols over uplands or marshes by aircraft or truck, or the relatively widespread aerial spraying of larvicides over wetlands), such applications hardly generate any public awareness, concern or comment.

For sake of good communications, and to help other agencies respond to possible public inquiries about mosquito control spraying activities, advance notifications of spraying are also provided by the Mosquito Control Section via telefax or e-mail to the Delaware Emergency Management Agency (DEMA), to each county's 911 Emergency Call Center, and to the Delaware Department of Agriculture's (DDA) Pesticide Compliance Section and to the DDA's State Apiarist.

Additionally, by a working agreement adopted in 2001 among the Mosquito Control Section, the DDA's State Apiarist, and the Delaware Beekeeping Association, for all aerial adulticide spray announcements the Mosquito Control Section now indicates via coded grid-block numbers (for a special map of Delaware) where aerial adulticide spraying activities are intended to occur. By the tri-party working agreement, it is incumbent upon commercial beekeepers to assume responsibility for their keeping up-to-date and for their being aware about locations where mosquito spraying is soon intended, achieved by the beekeepers taking advantage of the various spray announcement devices mentioned above (i.e. toll-free phone calls, radio announcements, webpage postings, listserver e-mails). If a commercial beekeeper has a problem with where some spraying will soon occur, the beekeeper should then inform the Mosquito Control Section in timely manner about such concerns, so that appropriate spray measures can be taken by Mosquito Control to avoid or minimize any adverse impacts to beekeeping operations. Since commercial beekeepers frequently move their bee colonies around in addressing crop pollination needs, and since the need for mosquito control spraying can be quite geographically variable and occur with relatively short notice, it is important that good two-way communications be maintained between Mosquito Control and commercial beekeepers, which adherence to the working agreement's protocols is intended to provide. The State Apiarist distributes to each of Delaware's registered beekeepers a copy of the working agreement and the coded grid map.

5. Time of Spraying

To the extent feasible and practicable, adulticide spraying will be conducted at times which minimize direct human exposure (preferably early morning or late evening for aerial applications). During the summer "tourist season" from the Friday evening immediately before the Memorial Day weekend through the Monday evening of Labor Day weekend, aerial adulticide applications in the "coastal resort strip" from Lewes to Fenwick Island may be made on weekdays in the morning from 5:30 to 8:30 a.m. and in the evenings from 6:00 to 9:00 p.m., excluding the weekend that is defined here as Friday evenings through Monday mornings (and through Monday evenings on holiday Mondays). The "coastal resort strip" itself may be viewed as extending landward of the Atlantic Ocean coastline from Lewes to Fenwick Island a distance of up to about 5 miles inland, as well as about 2 miles landward of the primary bayshores composing the Inland Bays. Exceptions to not aerially adulticiding the coastal resort strip between Friday evening and Monday morning can occur at special request (in writing) from a municipality, or in event that inclement weather or other circumstances prevent adulticiding at other times, whereby only the Friday evening to Monday morning weekend period is left for timely spray application. Aerial adulticide applications will only be made when weather conditions comply with product-label spraying requirements (e.g. clear visibility and winds no

more than 10 mph). Outside the coastal resort strip area, the weekend exclusion for adulticide spraying will not apply, but the daily time slots for spraying will still apply. An exception to the desired early morning and evening times for aerial spraying can occur when unusual weather conditions (e.g. fog, excessive wind, temperature inversions) preclude applications at the desired times, and yet the mosquito situation is so bad that spraying must still be performed that day, in which case spraying would also be permissible in the day between early morning and late evening. Ground applications of adulticides statewide may generally be done from late evening through early morning on weekdays or weekends, except that municipalities within the coastal resort strip from Lewes to Fenwick Island during the summer "tourist season" will generally not receive ground adulticide applications on the weekends (defined as above); municipalities within the coastal resort strip still might be ground-sprayed on weekends at special request (in writing) of a municipality, or if inclement weather or other circumstances prevent timely ground applications at other times. Ground applications will only be done when weather conditions comply with product-label spraying requirements.

6. Adulticides Used

The Mosquito Control Section may aerially apply by twin-engine aircraft at application rates up to those indicated below one or more of the following adulticides, with the choice of which product to use per spray event dependent upon the problem species to treat and other technical factors or local considerations:

1) Dibrom Concentrate (naled) applied at 0.10 lbs. AI/A, applied in ULV concentrated formulation of 1.0 oz./A, or

2) Trumpet EC (naled) applied at 0.10 lbs. AI/A, applied in ULV concentrated formulation of 1.2 oz./A, or

3) Scourge 18%+54% MF(resmethrin + PBO) applied at 0.007 lbs. resmethrin AI/A + 0.021 lbs. PBO AI/A, mixed with mineral oil, applied at a total volume of 3 oz./A (O.6 oz. Scourge 18-54/A plus 2.4 oz. mineral oil/A), or

4) Anvil 10+10 (sumithrin) applied at 0.0036 lbs. AI/A, applied in ULV concentrated formulation of 0.62 oz./A.

The following adulticides may be ground applied at application rates up to those indicated by truck-mounted Beecomist ULV (Ultra Low Volume) or London Fog ULV ground foggers:

1) Scourge 18%+54% MF (resmethrin + PBO) mixed with mineral oil, applied at a rate up to 0.007 lbs. resmethrin AI/A + 0.021 lbs. PBO AI/A, mixed with mineral oil, applied at a total volume of 3 oz./A (0.6 oz. Scourge 18-54/A plus 2.4 oz. mineral oil/A), or

2) Anvil 10+10 (sumithrin) applied at 0.0036 lbs. AI/A, mixed with mineral oil, applied at a total volume of 1.24 oz./A (0.62 oz./A Anvil 10+10 plus 0.62 oz. mineral oil/A).

The Mosquito Control Section will provide a copy of each adulticide's product label and its accompanying Material Safety Data Sheet (MSDS) to each municipality for their information.

7. Larvicides Used

The Mosquito Control Section may apply at application rates up to those indicated one or more of the following larvicides aerially by twin-engine aircraft or helicopter, or from the ground using truck-mounted sprayers or hand application methods, with the choice of which product to use per spray event dependent upon the problem species to treat and other technical factors or local considerations:

1) Abate 4E (temephos) applied at 0.048 lbs. AI/A, applied at 1.5 oz. Abate 4E/A mixed with water to achieve a final application volume of 64 oz./A, or

2) Abate 5BG (temephos) applied at 0.1 lbs. AI/A, applied in granular formulation at 2 lbs./A, or

3) Abate 2BG (temephos) applied at 0.1 lbs. AI/A, applied in granular formulation at 5 lbs./A, or

4) VectoBac 12AS (Bti) applied at 32 oz./A, or

5) VectoBac CG or G (Bti) applied in granular formulation at 10 lbs./A, or

6) Aquabac XT (Bti) applied at 32 oz./A, or

7) Aquabac 200G (Bti) applied in granular formulation at 10 lbs./A, or

8) Teknar HPD (Bti) applied at 32 oz./A, or

9) Teknar G (Bti) applied in granular formulation at 10 lbs./A, or

10) Altosid Liquid Larvicide (5% methoprene) applied at 0.013 lbs. AI/A, applied at 4 oz./A mixed with water to achieve a final application volume of 32 oz./A, or

11) Altosid Liquid Concentrate (20% methoprene) applied at 0.013 lbs. AI/A, applied at 1 oz./A mixed with water to achieve a final application volume of 32 oz./A, or

12) Altosid Pellets (methoprene) applied at 10 lbs./A, or

13) Altosid SBG (methoprene) applied in granular formulation at 10 lbs./A, or

14) Altosid Briquets (methoprene) applied at one briquet/100 sq. ft., or

15) Altosid XR Extended Residual Briquets (methoprene) applied at one briquet/200 sq. ft., or

16) VectoLex CG (Bacillus sphaericus) applied in granular formulation at 20 lbs./A, or

17) Agnique MMF (nonionic surfactant) applied at 3 oz/1000 sq. ft., or

18) Arosurf (nonionic surfactant) applied at 3 oz/1000 sq. ft.

The Mosquito Control Section will provide a copy of each larvicide's product label and its accompanying Material Safety Data Sheet (MSDS) to each municipality for their information.

8. Public Health Emergencies

In the event of an Eastern Equine Encephalitis (EEE), St. Louis Encephalitis (SLE), or West Nile Encephalitis (WNE) public health emergency, jointly recognized by DNREC and the Delaware Division of Public Health, aerial or ground adulticiding might be carried out over municipalities that have not signed the spray policy endorsement agreeing to permit such activities, as well as spraying also possibly occurring in designated No-spray zones, ceasing when the public health emergency is terminated. In event of a public health emergency, general public health considerations to prevent or lessen serious disease problems must take precedent over individual desires to avoid a short-term exposure to an insecticide that is registered by the EPA for application over populated areas, with knowledge that such exposures will of course take place but which are of minimum risk to human health and safety. The Section will try to continue to observe to the extent feasible and practicable its policies on advance notification, timing of spraying, and type of insecticides used, but public health concerns may necessitate deviations from these protocols, such as for application timing, for treating No-spray zones, etc.

IV. PROTOCOLS FOR ADULTICIDING UNINCORPORATED AREAS

The spraying of adulticides by aerial or ground application in unincorporated areas does not require a signed Mosquito Control Spray Policy endorsement such as is needed prior to spraying incorporated municipalities. Because of insurmountable practical and logistical problems in communicating with individual citizens or civic associations in unincorporated areas, the Mosquito Control Section must assume that timely and safe adulticiding is allowable and desired whenever pest populations become excessive or mosquito-borne disease potentially threatens. The Section will determine when and where adulticiding is necessary, based on physical evidence and in conjunction with complaints from individual citizens or civic associations. Similarly, the Section's ability to use larvicides, whether applied aerially or by ground, will not require any signed endorsements for when spraying is done in unincorporated areas.

Requests for no spraying of ground or aerially-applied adulticides in unincorporated areas can be made by individual residents or property owners by directly contacting the Mosquito Control Section, to request a form for applying for No-spray zone consideration, which after completion should then be returned to the Mosquito Control Section at the address indicated on the form (note: to request the application form, contact the Mosquito Control Section at 302-739-9917; or write to Delaware Mosquito Control Section, Division of Fish and Wildlife, DNREC, 89 Kings Highway, Dover, DE. 19901; or you can download a copy of the form over the Internet, by accessing http://www.dnrec.state.de.us/fw/mcnospray.htm). All such requests must be made prior to March 1 for each pest season and must be made in writing using the approved form, which will request information such as name, address, and telephone number of the resident or property owner requesting no spraying, a map indicating the location of the property not to be adulticided, and the reason(s) for requesting the No-spray zone. The names, addresses and phone numbers of all residents or property owners bordering a property where no spraying is requested, or who would be located within the requested No-spray zone block, must also be submitted by a person requesting a No-spray zone. This will assist the Mosquito Control Section in evaluating the No-spray zone request and in providing explanations to people who might then not receive pest relief services, resulting from their neighbor being granted a No-spray zone designation. However, if the entire requested No-spray zone block all fits inside the property of the person requesting such designation, with the borders of the requested No-spray zone coming no closer than 300 feet to any neighbor's property boundaries, then submitting information about neighboring residents or property owners will not be required. Individuals must indicate whether they are requesting no aerially-applied adulticides, no ground-applied adulticides, or both. This request for no spraying must be submitted each and every year using the approved form, as there will be no automatic carryover of No-spray zone requests from year to year. If an individual

citizen or civic association in an unincorporated area wishes to request a No-spray zone after the pest season has started (i.e. after mid-March), such requests may be submitted in writing to the Section similar to requests made prior to mid-March. However, due to the logistical problems in changing operational spraying procedures and advising contractors of revisions, the requester should understand that the Section will need at least two weeks advance notice in order to consider and review the request and to initiate procedural changes (if any).

Based upon the written requests for no spraying of adulticides, the Section will determine the need for and boundaries of No-spray zones and will notify the individual of the Section's decision. When possible, the Section prefers that individual requests for no spraying in areas or neighborhoods that have civic associations be coordinated and conveyed in writing to the Section by the civic associations prior to mid-March; however, individual requests can still be presented to the Section.

The application of adulticides in unincorporated areas will be similar to what is done in incorporated municipalities regarding times of spraying, insecticides used, and public health emergencies. However, in regards to providing advance notification of each spraying event, and because of insurmountable logistical problems, telephone calls or other personal contacts by the Section to individual citizens or civic associations will *not* be made. Nonetheless, concerned citizens can still inquire about the Section's intentions to spray by contacting, on a daily basis, the toll-free phone recording at 1-800-338-8181 or the Section's webpage posting at http://www.dnrec.state.de.us/fw/mosquito.htm, or they can subscribe to the Section's listserver to automatically receive such spray announcements via the Internet, and they can also be aware of pending spray operations by listening to any spray announcements that may be broadcast by local radio stations.

V. RESOLVING CONFLICTS IN UNINCORPORATED AREAS BETWEEN PERSONS REQUESTING NO SPRAYING VS. PERSONS WANTING PEST RELIEF VIA ADULTICIDING

Whenever possible, persons living in unincorporated areas who do not desire adulticiding will try to be accommodated by the Mosquito Control Section. However, conflicts sometimes arise when one or more nearby neighbors demand adulticiding for pest relief. Such conflict can arise either during the consideration or designation process for a No-spray zone or after a No-spray zone has been designated. When such conflict arises, the Section will attempt to resolve the disputes on a case-by-case basis, resulting in either continuation or resumption of adulticiding measures, modification of adulticiding measures, or stopping or continued cessation of adulticiding measures. Value judgments of public health, safety, comfort and quality-of-life must be weighed against the health or other concerns of an individual requesting no spraying. Individuals with special medical problems possibly attributed to pesticide exposure can obtain a physician's written opinion acknowledging pesticide sensitivity, and such people will be given special consideration by the Section to the extent feasible and practicable. The Section will try to resolve all conflicts in a manner acceptable to all parties, but public health concerns (e.g. arbovirus encephalitis outbreaks) must take precedence over other considerations. For most individuals having health-related concerns involving adulticide exposures, such people can satisfactorily minimize their concerns by paying attention to the advance spray notification process, followed by their taking common-sense measures to minimize or avoid exposure (e.g. temporarily leave the spraying area, temporarily moving inside, temporarily closing windows and doors, etc.). However, please note that given the safety of the types of EPA-registered adulticides or larvicides that the Section uses, and how these products are then applied with very minimal human health risks, which for a vast majority of people no special precautions need to be taken to avoid exposure to the Section's operational spraying.

VI. POLICY APPLICABILITY – TYPES OF SPRAY APPLICATIONS

This policy's requirements to request participation of incorporated cities or towns, and to give advance notice of intention to spray in incorporated cities or towns, is applicable to aerial applications of adulticides, as well as for ground application of adulticides when delivered by truck-mounted sprayers. Participatory consent by cities or towns is also needed for aerial applications of larvicides during the spring woodland control program or for aerial larviciding of other freshwater wetlands; but such participatory consent from municipalities is not needed for aerial larviciding over coastal tidal wetlands, nor for the ground application of larvicides by truck-mounted sprayers or hand application methods. However, advance spraying notice of all aerial larviciding within municipalities will be given. This policy's requirements for the Mosquito Control Section to give advance notice to cities or towns of intention to spray is not applicable to ground applications of larvicides when delivered by truck-mounted sprayers or on-foot by back-pack sprayer, hand-held sprayer, or hand toss. [It must be noted that if a municipality desires only on-foot applications of insecticides that are done by hand, and does not agree to aerial applications of insecticides nor to adulticide applications by truck-mounted sprayers, in many cases and locations it will then not be possible to provide satisfactory nuisance control or disease prevention.]

The spray policy is also applicable to insecticide applications that are made for mosquito control in unincorporated areas, in regard to many needs, matters or practices that are similar to what occurs in cities or towns; as well as providing some protocols that are specific or unique for adulticiding in unincorporated areas, where municipal government interactions are not possible nor applicable.

Finally, requirements to follow this spray policy can be waived by DNREC during a declared public health emergency (see Section III-8).

VII. GENERAL EMERGENCY WAIVERS

The Department, for exceptional circumstances or during emergencies, may modify this policy on a case-by-case basis.

VIII. POLICY ADOPTION

This "Mosquito Control Spray Policy" is adopted as Delaware Department of Natural Resources and Environmental Control management policy, and supersedes any previous written or unwritten policies.

First formulated and adopted in February, 1990.

Latest revision = January 10, 2006.